

ANALYSIS OF KNOWLEDGE MANAGEMENT IMPLEMENTATION AT ADHI KARYA

Brago Adijaya Putranto and Rudy Bekt
School of Business and Management
Institut Teknologi Bandung, Indonesia
brago.adi@sbm-itb.ac.id

Abstract—As one of the biggest State-Owned Enterprises (SOE) in Indonesia in the field of construction, ADHI's performance always depends on government policy. To support governance reform ahead, ADHI saw the opportunity to expand their work into investment, power, and realty. Therefore, ADHI establish new company programs including the establishment of knowledge management (KM) starting in 2009. This study main purpose is to see how well the implementation of KM in ADHI, and how to develop it better. The quality of KM explored through analyzing ADHI's external and internal organization using PESTEL and McKinsey's 7-S framework to form SWOT Matrix. Zack's KM analysis model later enable to confirm knowledge gap within the company as the problem to solve. ADHI's new scope of work and poor system information become the main aspects of their knowledge gap cause. ADHI needs to develop short, medium, and long term initiatives to perfected KM implementation in ADHI. Short-term means to develop system information and training, medium means to develop system to acquire expertise knowledge, and long-term means to expand their expertise in designing and finishing projects.

Keywords: Knowledge, Human, Information

1. Introduction

Since President Susilo Bambang Yudhoyono served as Indonesia's leader, state-owned enterprises (SOE) who worked in the field of construction instantly turn into optimistic thanks to the enactment of the Infrastructure-driven Economic Growth in 2006 announced by the government. (MarkPlus&Co, 2006). But 2013 will be the last year of the leadership of President Susilo Bambang Yudhoyono in Indonesia, which with the change of government there also will have the possibility of changes in government policy for SOE. ADHI needs to be able to adjust their company to the extreme changes Indonesia's construction business environment in the future. Some of the things that crucially happened in the organizational level before are the changes of company's management, structure, business strategy, and business line adjustments. However, as a construction company, ADHI's main resource is their human expertise. ADHI has realized the importance of knowledge gained from experience; therefore in 2009 they formed ADHI Knowledge Management team.

However, as a company that is still on the early stages to become a learning organization, ADHI still have to continue to make adjustments to changes occur in business environment while developing their quality of knowledge management in between the company. And now, in the last year of the leadership of President Susilo Bambang Yudhoyono, the business environment will allegedly change again, ADHI expected to prepare the resources to be able to continue to have a competitive edge within the construction business excellence.

This research conducted in ADHI to test the quality of the knowledge management performance/application. The research work carried out in ADHI Central Headquarter which the core of human resource management across all ADHI's branches located here. The study was conducted

under auspices and supervision of ADHI Learning Center, a new division that was formed in 2011 which mainly in charge of replacing Knowledge Management Team that previously formed to develop knowledge management infrastructure.

Based on some interview with ADHI's division responsible for the development of knowledge management of the company, ADHI Learning Center, and with some of the company's core managers, supported with questionnaire data, obtained some issues that hinder the development of knowledge management in ADHI. They will be explored based on appropriate theories and some solutions and way to implement the solutions will be provided.

A. ADHI Profile

PT. Adhi Karya (Persero) Tbk.

Business: Construction Services.

Status : State-Owned Enterprises (SOEs).

Address : Jl. Raya Pasar Minggu Km. 18 Jakarta 12510.

The name "Adhi Karya" for the first time mentioned in the Decree of The Minister of Public Works and Power on March 11, 1960. Then based on government regulation (PP) No, 65 of 1961, Adhi Karya is set to PN Adhi Karya (state enterprise). The company was actually formed by the government as a part of plan for developing infrastructure in Indonesia and welcomes the nationalization of the companies belonging to the Netherlands is governed by Regulation No. 23 (1958). With this policy, the Netherlands contractor company Naamloze Vennootschap Aarchitaecheningenieurs en Annemersbedrijf Associatie Selle en de Bruyn, Reyerse en de Vries N.V. ("Associate N. V.") is melted into the State-Owned Enterprises (SOEs) Adhi Karya.

PN Adhi Karya new status changed to a Limited Liability Company in 1974, based on deed 1 dated June 1, 1974 in conjunction with the Deed of Amendment No. 2 dated December 3, 1974 establishing PT. Adhi Karya (Persero). Along the way, ADHI's Article of Association has been amended several times. The last amendment was based on The Act of Amendment of ADHI Article of Association No. 1 dated April 1, 1998. The government through the Ministry of State-Owned Enterprises, authorizing as a shareholder, released 49% of its shares to be offered to the public through Initial Public Offering (IPO).

Of these shares, there is stock ownership for employee and ADHI management by means of EMBO program up to as much as 24.5% of the company shares that has been placed after Initial Public Offering. This partition has been approved by Indonesian House of Representatives No. PW.001/660/DPR RI/2004 dated February 10, 2004 and described through Government Regulation No. 11 (2004) dated March 2, 2004. With BAPEPAM Decree No.S.494/PM/04 dated March 8, 2004 the Registration Statement becomes effective in order to conduct the Company's Public Offering to the public in a total of 441.320.000 (four hundred and forty one million three hundred and twenty thousand) ordinary shares with new name and a nominal of Rp 100,00 (one hundred Indonesian Rupiah) each. ADHI has thus become the first construction SOEs listed on the stock exchange.

B. ADHI's Scope of Business Field

Starting the middle of 2011 the business integration done towards ADHI Incorporated includes dividing ADHI Business into five lines, which are:

1) Construction

Carry out development of both civil works and high-rise buildings including public facilities such as airports, ports and harbors, roads and bridges, dams and irrigation channels, and so forth.

2) *EPC (Engineering, Procurement, Construction)*

ADHI has a leading position as a key player in the powerhouse construction industry. Based upon this excellence and experience, ADHI is currently expanding into the oil and gas sector making ADHI one of the pioneers of Karya State-Owned Enterprise in the Indonesian EPC business.

3) *Infrastructure Investment*

Consist of infrastructure investment projects, specifically powerhouse and tolls. Infrastructure has always been one of ADHI's core expertise, especially when building roads and highways. To move in this investment sector, ADHI has to be able to become managers and doing maintenance rather than just building it for other investors.

4) *Property*

Develop district buildings (high rise building) for commercial, office, apartments and hotels. Same thing happened in the infrastructure investment, to be able to succeed in this property section ADHI needs to be able to become managers and doing maintenance, and also selling it to people or other investors rather than just build it.

5) *Real Estate*

Developing luxury quality residential, landed house, and four floor maximum shop houses in both the land development and residential development design.

As a long time player in the construction industry, ADHI's decision to move in outer scope of construction work (investment, power, and realty) tends to be spontaneous and sporadic. This causes less mature planning and changes that occurs in ADHI's main programs. It is increasingly showing that ADHI, who has human resources as its primary resources, must be able to prepare its workforce for these new scopes ahead.

C. *Business Issues*

The introduction part is commenced with description regarding on how the student firstly obtains business assignment as his latest project topic. Then, it continues with sub-part of company short profile as the focus of the latest project containing (a) company history, (b) scope of business field undergone by the company, (c) description regarding to the working unit or subsidiary as the unit of analysis in the recent project and (d) business issue faced by such unit. For well-defined issues, the part regarding business issue should contain in detail regarding any issues to face, the causing factor arising the issues and the impact suffered by the company at the current time and its prediction in the future.

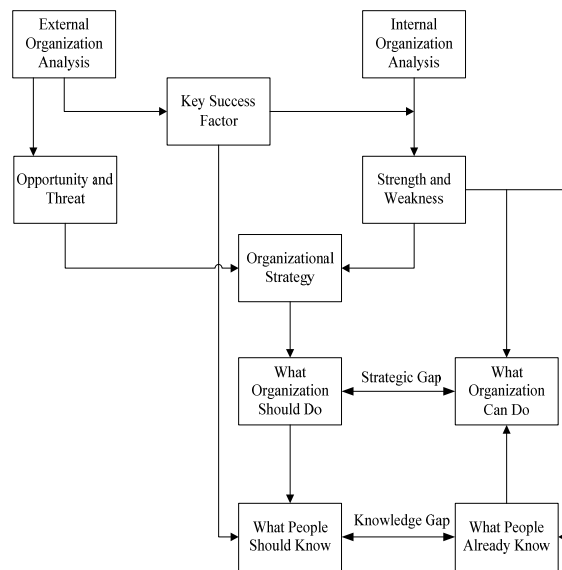
2. Business Issue Exploration

Since 2006 ADHI has carried out infrastructure-driven economic growth policy. But, public necessities for infrastructure such as roads, transportation, telecommunication, electricity, and water channels are far from sufficient. Triggered by the high demand for infrastructure development, in the micro level, construction services (JAKON) will still be a potential industry in the future. Moreover, Engineering, Procurement, and Construction (EPC) which is the extension of JAKON are predicted to grow especially for the construction of power generation and energy along with the heightened needs of the community. Currently, ADHI has proven to manage itself in surviving the extreme changes happening in the business environment. However, before this management ends, rumours arise that turbulence in the construction business will happen again as the presidency of Susilo Bambang Yudhoyono ends next year. ADHI that is very dependent upon the external factors, especially political sectors, must prepare its company to adapt because it is a learning organization. Moreover, the company has new objectives for the next 5 years.

The problem is, as a learning organization facing the early stages of business environment changes, ADHI's department of labour must manage its workers because they are the resources of the company. Development of skills and knowledge of employees, company values, and integrated information systems must be improve so all three can harmonize with each other. With the integration of these three variables ADHI can sustain while continuing to thrive as a large competitive construction company in Indonesia. So to optimize the performance of ADHI, takes a more in-depth analysis in their knowledge management implementation. Analysis of these issues will be explored using framework that would analyze the knowledge gap occurs in the company.

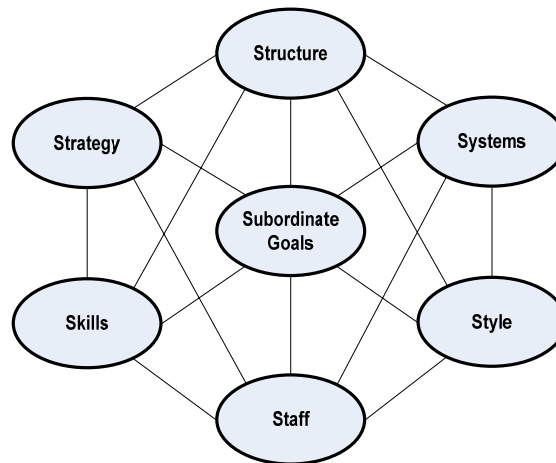
D. Conceptual Framework

ADHI as a Karya SOE has a core business strategy that doesn't change, which is construction. To develop knowledge management in ADHI, direction that's in line with the company's strategy is needed in order to fit and support the core capabilities of the organization. Therefore, the conceptual framework that is chosen to develop ADHI's knowledge management is adapted from Michael Zack's model, as follow: (Setiarso, 2009)



By using this conceptual framework, system alignment can be developed for the company. System alignment begins with analysis of external conditions and internal organization that will eventually form SWOT analysis on the organization and factors that determines the success of the organization so that it can be determined in organization goals and strategies to achieve those goals. Also, by using this framework, it is like developing new knowledge plan for ADHI, that the already have. So, by using this framework, we can see whether ADHI's knowledge management program/progress is actually matched well with its future plan/forecast.

7-S Model will be used to analyse internal organization. This model has the capability to analyse integrated organization functions. The 7-S Model is shown below:



The model is based on the view that;

- 1) Effectiveness of an organization is dependent upon interaction of several factors, and
- 2) Successful changes require more attention on relationship between variables.

7-S model of diagnosis is intended to emphasize the relationships between related variables. Of the 7 variables that are diagnosed, this model divides them into two types of elements. The first element is called a hard element and the second element is called soft element. Hard elements consist of strategy, structure, and systems. This element describes the type of basic values that will not shift, and tend to be stable. Soft element consists of subordinate goals, skills, staff, and styles. This element describes the type of values that are more complex that has the potential to be affected by changes in the culture and the environment. In this part, author develops conceptual framework that may assist them to find root of issues. Good criteria of conceptual framework is to have balance rigor and relevance, it means that it has to have sufficient foundation or concept, and it has to be relevant with the business context

E. Method of Data Collection and Analysis

The research will be conducted in the following manner:

1. Literature Study

Literature study is conducted by using lecture references Knowledge Management, internet, and other media given by the company such as Employee Handbook (PMBOK) and ADHI financial reports.

2. Interview

Interview will be conducted for additional information regarding the condition before and after the change occurs and how the change management was executed. Resource persons for the purposes of this research data are:

- Ir. Bambang Pramusinto (Operational II Director of ADHI)
- Ir. Feriyanto (Director of ADHI Persada Realty)
- Ir. Dwiyono (Director of ADHI Learning Center)
- Ir. Agus Sitaba (Director of ADHI HRC)
- Ir. Ipuk Nimpuno (Director of Construction IV Division)
- Ir. Agus Sulistiyo (PM Divkon IV Teluk Lamong)

F. Analysis of Business Situation

a. External Organization Analysis

- *Legal and Politics*

The changes in government and politics that may influence ADHI in the period 2012-2016 are:

1. 2014 election that can provoke political instability.
2. The change of government that originally had the concept of infrastructure-driven economic-growth to no longer focusing on infrastructure. This may cause changes in policy towards the government budget for Karya SOE.
3. Arise of regional autonomy due to the enactment of Law Number 32 year 2004 about Local Government, will decentralize projects from the central government to local/regional government.
4. Implementation of Law No. 25 Year 2007 on investment that offers improvement on expansion and ease of investment, opening opportunities for strategically projects.

- *Economy*

In Indonesia, transformation of the economic status from underdeveloped into emerging country, with an addition of economic development and high population gives a positive impact on Indonesia's economy. Increase confidence of investors to invest in Indonesia is attested by an increase in portfolio and Foreign Direct Investment (FDI) that became significant in the last couple of years. This is a good starting performance for future economic development. Investors see Indonesia attempt to start restoring and concentrating to improve infrastructure, government's efforts to reduce corruption, and institutional strengthening measures also give a good image to the international world. These things are the supporting factor that makes global investors began to look at Indonesia as an investment option.

- *Social and Cultural*

Several social changes that need to be noted are:

1. As an emerging country there is an increase need for infrastructure improvement until it becomes a steady state.
2. Trending issue on global warming and climate change develops *green construction* in Indonesia.
3. The drive to improve the bureaucratic process to be more transparent, faster in response, and increasing efforts to eliminate corruption in Indonesia encourages the business climate.
4. Improving the quality of education in Indonesia provides an opportunity to absorb qualified Human Resources.
5. The recent Labour Law has raised awareness in the society including labour rights and will effect project development projections.

- *Environment and Technology*

With the rise of global warming issues and ecological awareness of the society, almost all investor has shifted their vision into developing sustainable green construction. Although it still uses the same construction techniques to the building in general, but green construction requires more attention on the entire line in order to keep the preservation of the environment. Therefore, the changes that occurred in the construction process involve a change from planning, survey, design, construction and finishing, and of course this requires a new understanding and expertise in the field of design and construction.

b. SWOT Analysis

- *Strengths - Opportunities*

SWOT analyses of strengths-opportunities are used to maximize the opportunities that exist by leveraging the power or advantages (strengths) owned by ADHI:

1. *Optimizing Knowledge Management*

With the experience of projects done in the past, it is necessary to keep the system sustainable for (storing) and channel (distribute) to the employees and the company. AdhiMIS as the current databases is assessed to be less comprehensive in storing and managing data, significant increase in technology is required in this section. In addition, in order to facilitate the process of data input into

a Knowledge Management system, there needs to be a user guide of how to upload data into AdhiMIS.

In addition, wireless network also needs to be improved to stay smooth and steady, not often disrupted by weather and network disruption. A special tunneling and encryption of data communications is also required in order to facilitate access across the divisions, and created a special line to the client or supplier. This is not only applied in the central office, but must be installed in the regional and project site.

2. Strengthening EPC Competence In Engineering

In its development, market demand for EPC services is increasing. Therefore, it needs strengthening in its engineering competencies so ADHI can take the opportunities to gain EPC projects. By doing so, ADHI can improve its competitive when facing competitors in the same industry.

- *Strengths - Threats*

SWOT analysis of strength-threats factors is used to minimize threats (threats) by harnessing the advantages (strengths) that are owned by ADHI:

Strategic Alliance with Foreign Partners in the Form of JO / JV

To cope with globalization, ADHI can make cooperation with foreign partners in the form of Joint Venture / Joint Operation. As the oldest SOE in the field of construction, ADHI has the advantage of experience and business networks in Indonesia that can be bargaining advantage when negotiating with foreign partners. The advantages ADHI will gain are knowledge transfer from foreign partners.

- *Weaknesses – Opportunities*

SWOT analysis of weaknesses-opportunities factors is used to overcome weaknesses owned by ADHI by taking advantage of the existing opportunities.

Fulfilments HR In Quantity And Quality, And HR Integration Along its Career Path

ADHI continues to recruit new employee through Management Trainee program in order to meet the needs of its HR and supports corporate strategy, which is included as part of the rejuvenation effort for the company. Further improvement of ADHI HR competencies is necessary to address the needs of construction industry development, particularly in the field of EPC. This condition depends highly to outsourcing employee activities that handle the EPC projects. The ratio of ADHI employees with outsource in an EPC project is 50:50, this cannot be describes as optimal for ADHI's internal employee. Therefore to strengthen EPC, a comprehensive training program for internal employee should be conducted to meet EPC standards through insourcing.

- *Weaknesses - Threats*

SWOT analysis on weaknesses-threats factors is used to overcome weaknesses against threats that ADHI are facing:

Selective Focus to Domestic Projects in the Midst of Global Economic Crisis

Deciding the right project is very important in the midst of global economic crisis. Choosing projects abroad will results in profound risk of loss for the company due to high interest rate and foreign currency exchange rate. Therefore, focusing on domestic project is a smarter choice to minimize the risks.

c. Gap Analysis

ADHI's capability as a Karya organization in its preparation in the business environment can be concluded from the SWOT Matrix analysis, supporting data from knowledge gap analysis, and interview results.

Improving the quality of human resources is seen as a core part that must be considered for the company to increase its performance. Therefore, it can be concluded that the root problems ADHI must solve are:

1. Increase of knowledge due to the expansion of scope of work from the prior scope work, which is construction into EPC and investment.
2. Inadequate information system Network for data distribution and communication.

3. Business Solution

Analysis

As explained in the other chapters, to resolve the underlying issues that exist within ADHI's central company KM approach will be used as the problem-solving solution. To apply Knowledge management on this issue following steps are used:

1. *Determining KM objectives*

KM Objective determination is useful to facilitate the determination of objectives that are most appropriate to address the root causes of KM quality in ADHI. To determine these objectives, KM Objective Determination Matrix is set up by adapting from the theory of Garfield (2007) with cross reference with results of SWOT analysis in from ADHI's SWOT Matrix

2. *Identifying needs of people, process, and technology.*

By using several questions, analysis process will be conducted to determine who, how, and what to participates in the program KM with the established objectives.

3. *Setting KM strategy to achieve KM objectives.*

Proper KM Strategy is required to achieve the targets specified. There are nine basic KM Strategy that will be outlined for each KM Objectives.

4. *Identify KM components.*

The following components are selected based KM Objectives and strategy:

Incentive and reward. This component is one of the most important components for successful implementation of KM in the company because it is directly related to employee motivation in learning and sharing knowledge. The KM components can be realized with the launching of Reward and Awards program for employees. (Strategy-motivate)

Training. This component is needed because it serves as the main media in the introduction and spread of knowledge to employees. The corporate training program is also able to identify skills and knowledge development needs so it is more effective and efficient.

Communities. This component is an applicative means between KM Leaders with groups of organizations with different expertise backgrounds. The establishment of community will stimulate the dissemination of knowledge. (Strategy-network)

KM Leaders. This component is important to own because it serves as a trigger, example, and KM control. With the KM leader who serves as an example will create employees that are custom to use the KM media and sharing knowledge.

Proven-practices. This component is needed because of the necessary to avoid mistakes and learn new things from different business scope.

Repositories. Is one of the most crucial supports for success KM ADHI in which the magnitude of the problem is the lack of good access to networks information and database. With improvements in this area, the process of gaining knowledge will become easier and faster, and encouraged employees to ask questions and learn.

Metadata and tags. This is an important component to support the success of repositories. Without metadata and tags, corporate data will be difficult to identify because of segmentation and ill-structured storage.

Intranet. This is an important and available component which is not optimally used in ADHI. To increase network security, stable connection, and integration with the KM system is needed.

Expertise locators and ask the expert. By playing outside the scope of his expertise, this component is required for the development of innovation and employees basic skills in the field of project and also in the development of KM as a place to ask.

User Interface. These components are to facilitate access to knowledge, either to download or upload information. The user interface should be well integrated into the knowledge network.

4. Conclusion and Implementation Plan

KM Initiatives for ADHI will be divided into three application periods, which are short-term plan, medium-term plan and a long-term plan.

Proposal for KM Initiatives Implementation:

1. Short-term Initiatives

- a. Overhaul of the training system based on KM that is focused on positions that directly holds the company's field role, which are: PEM Staff, PPM Staff, PFM Staff, Project Engineering Manager, Project Production Manager, Project Finance Manager and Project Manager.
- b. Updating the intranet and internet networks and implementing KM tools and KM program in it.
- c. Rebuilding the centralized corporate database, perform technical company data collection, and build a stable network that can be accessed by all ADHI staffs and managers.
- d. Identify development needs of KM in 6 Construction Division, Division of Foreign Affairs, EPS and Investment.
- e. Providing intensive and accurate pre-project preparation in every project that will be built/started as a short-cut effort in distributing knowledge to project organization that handles in the field directly.

2. Medium-term initiatives

- a. Mapping expertise of every employee that has been through training and forming communities of practice for employees with different skills, so distribution of expertise in the project management process will be more effective.
- b. Building ALC as the center of ADHI KM and become KM leaders with leading and sharing abilities for KM programs, also can become project management consultant.
- c. Redesigning incentive and rewards system by including KM indicators.

3. Long-term Initiatives

- a. Developing a new standard in company recruitment for employers with expertise in design, investment and finishing project.
- b. Developing a project design division and conduct training on infrastructure designing.
- c. Conducting finishing project training for all ADHI staff to later develop it into a competitive advantage for ADHI.

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